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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/758,267	Applicant(s) FACCINN ET AL.	
	Examiner Ian N Moore	Art Unit 2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8-19,22 and 24-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8-12,14,15,18,19,22 and 24-39* is/are rejected.

7)☒ Claim(s) *13,16 and 17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. It is noted that the information disclosure statement filed on 10/3/02 (paper number 6). However, the information disclosure statement was not received. Examiner is requesting the applicant to re-submit this missing information disclosure statement form (PTO 1449) and any item of information contained in this information disclosure statement.

Drawings

2. **Figure 1** should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "**a third network element**" and "**a fourth elements**" in claim 16, line 2-3 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: **Common Charging Identifier for GPRS communication networks**.

Claim Objections

5. Claim 4 is objected to because of the following informalities: claim 4 recites, "...said second network elements..." in line2. Since there is only **a** second network element is recited, there should only be "...said second network element..." Appropriate correction is required.
6. Claim 24 is objected to because of the following informalities: claim 24 recites, "...identification **in of an** application..." For clarity, it should be modified as "in one of the..." Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1,3,4, 24,33,38 and 39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites, "...a mobile station initiating **a first connection** in a application layer and **a second connection** in a transport layer..." in line 3-4. It is unclear whether the

mobile station is initiation two simultaneous connections at each layer. Neither the specification nor the drawings discuss that the mobile unit initiating two connections at each layer, specifically the second connection. It is well known in the art that the a mobile station initiated/established request for a single connection from the application layer, and the request for a connection is encapsulated from application layer, transport layer, and physical layer overheads before it is forwarded to the next node. Thus, it is unclear how a mobile station initiates/establishes "a second connection".

Claims 24, 33, 38, and 39 are also rejected for the same reason as stated above.

Claim 3 recites, "...said first network element sends **an address of a network element** together with said charging information to said second network element" in line 2-3. It is unclear what is the address of a network element and where is "a network element". Note that there are only two network elements and a mobile station. It is unclear whether a network element is a first network element, a second network element, or a mobile unit. If it were **another network element**, as recited by the claim, it is unclear where is this " a network element", how does this network element connected to the first and second network element, how does a first network adds this network element address since there is no correlation between " a network element" and exiting network elements.

Claim 4 is also rejected for the same reason as stated above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1,2,5,14,15,24-27,38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deakin (U.S. 6,463,275) in view of Forslow (U.S. 6,608,832).

Regarding claim 1, Deakin'275 discloses a method for coordinating charging information in a communications network (**see FIG. 2, Charging Architecture of BCI of the GSM/GPRS cellular network FIG. 1**), the method comprising:

a mobile station (**see FIG. 2, MS**) initiating a connection (**see FIG. 7, subscriber request service for a connection; see col. 4, lines 50-54; note that per FIG. 1, connection request signaling message is initiated and established between TEs**);

generating a charging identification (**see col. 4, lines 19-50; BCI, Bill Class Identifier**) in a first network element (**see FIG. 2, NE2; see col. 3, lines 24-33; note that BCI is generated at the NEs when the connection is requested/initiated for billing/charging**);

sending said charging identification from said first network element (**see FIG. 2, CDR's with BCI**) to a second network element (**see FIG. 2, Charging Gateway; see col. 3, lines 25-37; note that BCI is send from NE2 to Charging gateway. Also, note that per**

FIG. 1, BCI can be also routed back to NE1 along with the response to connection signaling message from remote TE; see col. 3, lines 15-18);

including said charging identification in call records (**see col. 3, lines 33-36; note that Call Detailed Records, CDR includes BCI**) of said first and second network elements (**see col. 3, lines 29-39; note that upon connection initiation, CDR's with BCI is send from NE2 to charging gateway, thus CDR includes NE2 records. Similarly, NE1 also sends CDR to appropriate billing system, thus CDR includes NE1 records. Also, since it is possible to include CDR of NE2 records in the response to connection signaling message from NE2 to NE1, NE1 can also includes NE1 and NE2 CDRs**); and

coordinating charging information in the communications network using said charging identification included in the call records of said first and second network elements (**see FIG. 7, note that the each network node records usage is forwarded to the charging gateway, the charging gateway coordinates/associates the billing/charging information by using BCI included in CDR of the nodes; see col. 3, line 30-64; see col. 4, lines 14-55**).

Deakin'275 does not explicitly disclose a mobile station (**see Forslow'832 FIG. 3, Mobile station host**) initiating a first connection in an application layer (**see Forslow'832 FIG. 3, Application Layer; see FIG. 12, PDP context is activated; see col. 3, lines 54 to col. 4, lines 8, 42-44; note that the mobile unit (i.e. a user) initiates a first part of the connection request at the application layer by creating PDP context**) and a second connection in a transportation layer (**see Forslow'832 FIG. 3, the mobile station propagates the connection request at a combined system of layers which transport the message towards the network; see col. 4, lines 42-60**);

generating a connection request/response messages in a first network element (**see Forslow'832 FIG. 3 Gateway GPRS Support Node, GGSN**) in one of the application layer or the transport layer (**see Forslow'832 FIG. 3, GTP/TCP/IP layers; FIG. 12, L2TP (PPP CHAP/APP response); col. 4, lines 1-41; note that GGSN responds and generates the PDP context messages in GTP/TCP/IP layers);**

sending said connection response/request messages from said first network element in said one of the application layer or the transport layer to a second network element (**see Forslow'832 FIG. 3, Servicing GPRS Support Node, SGSN**) in the other one of the application layer or the transport layer (**see Forslow'832 FIG. 3, GTP/TCP/IP/SNDCP layers; FIG. 12, L2TP (PPP CHAP/APP) response is send from GGSN to SGSN; col. 4, lines 9-60; note that GTP/TCP/IP layers of the GGSN sends the connection response message to GTP/TCP/IP/SNDCP layers of SGSN**);

including said information in connection response/request message of said first and second network elements (**see Forslow'832 FIG. 13, GTP messages contains the network information (i.e. addresses, offer time, IDs, configuration, and etc.) regarding the SGSN, GGSN nodes, and servers; see col. 20, lines 1-47**);

However, the above-mentioned claimed limitations are taught by Forslow'832. In view of this, having the system of Deakin'275 and then given the teaching of Forslow'832, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Deakin'275, for the purpose of providing the mechanism of processing connection messages in application and transport layers in the GPRS network, as taught by Forslow'832, since Forslow'832 states the advantages/benefits at col. 5, lines 22-35

that it would provide quality of service based, radio Internet access in order to support multiple application services including voice, data and multimedia. The motivation being that by processing at each layer and establishing the connection messages for the connection, it can increase the quality of service for each type of connection in the network.

Regarding claim 2, Deakin'275 discloses wherein said second network element adds said charging identification to charging information which said second network element collects **(see col. 3, lines 29-40; note that upon connection initiation, NE1 adds the BCI to call Detailed Records (CDR) which NE1 recoded/collected for billing).**

Regarding claims 5 and 27, the combined system Deakin'275 and Forslow'832 discloses charging identification is sent from said first network element to said second network element in said one of the application layer or the transport layer to other one of the application of layer or the transport layer as descried above in claims 1 and 24.

Forslow'832 further discloses the message is sent from said first network element **(see Forslow'832 FIG. 3, Gateway GPRS Support Node, GGSN)** to said second network element **(see Forslow'832 FIG. 3, Servicing GPRS Support Node, SGSN)** directly via an interface between the transport and application layers or an interface between first and second network elements **(see Forslow'832 FIG. 3, an interface between TCP/IP transport layer and GTP application layers of GGSN and SGSN nodes; FIG. 12, L2TP (PPP CHAP/APP) response is send via an interface between TCP/IP Transport layer of GGSN to GTP application layer of SGSN; SGSN; col. 4, lines 9-60;**

However, the above-mentioned claimed limitations are taught by Forslow'832. In view of this, having the system of Deakin'275 and then given the teaching of Forslow'832, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Deakin'275, for the same purpose and motivation as described above in claim 1.

Regarding claim 14, the combined system Deakin'275 and Forslow'832 discloses said first network element is in one of the application layer or the transport layer as descried above in claim 1. Forslow'832 further discloses wherein the first network element (**see Forslow'832 FIG. 3, Gateway GPRS Support Node, GGSN**) is in said transport layer (**see Forslow'832 FIG. 3, GGSN is in the TCP/IP transport layer so that it can transport the data and signaling information); col. 4, lines 9-60.**

However, the above-mentioned claimed limitations are taught by Forslow'832. In view of this, having the system of Deakin'275 and then given the teaching of Forslow'832, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Deakin'275, for the same purpose and motivation as described above in claim 1.

Regarding claim 15, the combined system Deakin'275 and Forslow'832 discloses the charging identification is forward to said second network element in one of the application layer or the transport layer as descried above in claim 1. Forslow'832 further discloses wherein the second network element (**see Forslow'832 FIG. 3, Support GPRS Support**

Node, SGSN) is in said application layer **(see Forslow'832 FIG. 3, SGSN is in the GTP application layer so that it can process the application data and signaling information); col. 4, lines 9-60.**

However, the above-mentioned claimed limitations are taught by Forslow'832. In view of this, having the system of Deakin'275 and then given the teaching of Forslow'832, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Deakin'275, for the same purpose and motivation as described above in claim 1.

Regarding claims 19 and 26, Deakin'275 discloses wherein the charging identification comprises a tuple or tuple pair **(see col. 4, lines 14-50; note that BCI comprises a tuple of billing class identifiers)**.

Regarding claim 24, Deakin'275 discloses a system for coordinating charging information in a communications network **(see FIG. 2, Charging Architecture of BCI of the GSM/GPRS cellular network FIG. 1)**, the system comprising:

a first network element **(see FIG. 2, NE2)** and a second network element **(see FIG. 2, NE1)**, adapted to include a charging identification in their call records **(see col. 3, lines 33-36; note that Call Detailed Records, CDR includes BCI; see col. 3, lines 29-39; note that CDR's with BCI is send from NE2 to charging gateway, thus CDR includes NE2 records. Similarly, NE1 also sends CDR to appropriate billing system, thus CDR includes NE1 records. Also, since it is possible to include CDR of NE2 records in the**

response to connection signaling message from NE2 to NE1, NE1 can also includes the NE1 and NE2 CDRs);

means for coordinating charging information using said charging identification included in the call records of said first and second network elements (**see FIG. 7, note that the each network node records usage is forwarded to the charging gateway, the charging gateway coordinates/associates the billing/charging information by using BCI included in CDR of the nodes; see col. 3, line 30-64; see col. 4, lines 14-55**;

means for establishing a first connection in an application layer and a second connection in a transport layer (**see FIG. 7, subscriber request service to establish a connection; see col. 4, lines 50-54; note that per FIG. 1, connection request signaling message is initiated and established between TEs**),

said first network element being adapted to create the charging identification (**see FIG. 2, NE1 and/or NE2; see col. 3, lines 24-33; note that BCI is generated/created at the NEs when the connection is requested/initiated for billing/charging**); and

sending said charging identification from said first network element (**see FIG. 2, CDR's with BCI**) to a second network element (**see FIG. 2, Charging Gateway; see col. 3, lines 25-37; note that BCI is send from NE2 to Charging gateway. Also, note that per FIG. 1, BCI can be also routed back to NE1 along with the response to connection signaling message from remote TE; see col. 3, lines 15-18**).

Deakin'275 does not explicitly disclose establishing a first connection in an application layer (**see Forslow'832 FIG. 3, FIG. 3, Mobile station host's Application Layer; see FIG. 12, PDP context is activated; see col. 3, lines 54 to col. 4, lines 8, 42-44;**

note that the mobile unit (i.e. a user) initiates a first part of the connection request at the application layer by creating PDP context) and a second connection in a transportation layer **(see Forslow'832 FIG. 3, the mobile station propagates the connection request at a combined system of layers which transport the message towards the network; see col. 4, lines 42-60)**;

said first network element adapted to create a connection request/response messages **(see Forslow'832 FIG. 3 Gateway GPRS Support Node, GGSN)** in one of the application layer or the transport layer **(see Forslow'832 FIG. 3, GTP/TCP/IP layers; FIG. 12, L2TP (PPP CHAP/APP response); col. 4, lines 1-41; note that GGSN responds and generates the PDP context messages in GTP/TCP/IP layers);**

means for sending said connection response/request messages from said first network element in said one of the application layer or the transport layer to a second network element **(see Forslow'832 FIG. 3, Servicing GPRS Support Node, SGSN)** in the other one of the application layer or the transport layer **(see Forslow'832 FIG. 3, GTP/TCP/IP/SNDCP layers; FIG. 12, L2TP (PPP CHAP/APP) response is send from GGSN to SGSN; col. 4, lines 9-60; note that GTP/TCP/IP layers of the GGSN sends the connection response message to GTP/TCP/IP/SNDCP layers of SGSN)**;

However, the above-mentioned claimed limitations are taught by Forslow'832. In view of this, having the system of Deakin'275 and then given the teaching of Forslow'832, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Deakin'275, for the purpose of providing the mechanism of processing connection messages in application and transport layers in the GPRS network, as

taught by Forslow'832, since Forslow'832 states the advantages/benefits at col. 5, lines 22-35 that it would provide quality of service based, radio Internet access in order to support multiple application services including voice, data and multimedia. The motivation being that by processing at each layer and establishing the connection messages for the connection, it can increase the quality of service for each type of connection in the network.

Regarding claim 25, Forslow'832 discloses a mobile station (see FIG. 3, Mobile Host/Station) initiating a first connection in an application layer (**see Forslow'832 FIG. 3, Application Layer; see FIG. 12, PDP context is activated; see col. 3, lines 54 to col. 4, lines 8, 42-44; note that the mobile unit (i.e. a user) initiates a first part of the connection request at the application layer by creating PDP context**) and a second connection in a transportation layer (**see Forslow'832 FIG. 3, the mobile station propagates the connection request at a combined system of layers which transport the message towards the network; see col. 4, lines 42-60**).

However, the above-mentioned claimed limitations are taught by Forslow'832. In view of this, having the system of Deakin'275 and then given the teaching of Forslow'832, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Deakin'275, for the same purpose and motivation as described above in claim 24.

Regarding claim 38, Deakin'275 discloses a network element for use in coordinating charging information (**see FIG. 2, NE 1 or 2**), the network element including:

means to create a charging identification (**see col. 4, lines 19-50; BCI, Bill Class Identifier; see FIG. 2, NE2; see col. 3, lines 24-33; note that BCI is generated/created at the NEs when the connection is requested/initiated for billing/charging);**

means to include the charging identification the call records thereof (**see col. 3, lines 33-36; note that Call Detailed Records, CDR includes BCI**) and

means for sending said charging identification from said network element so as to be used by the further network element (**see col. 3, lines 25-37; note that BCI is send from NE2 to Charging gateway so that charging gateway can be used the BCI for billing. Alternatively, note that per FIG. 1, BCI can be also routed back to NE1 along with the response to connection signaling message from remote TE; see col. 3, lines 15-18);**

to enable charging information for the elements to be coordinated **(see FIG. 7, note that the each network node records usage is forwarded to the charging gateway, the charging gateway coordinates/associates the billing/charging information by using BCI included in CDR of the nodes; see col. 3, line 30-64; see col. 4, lines 14-55; Alternatively, NE1 can coordinate/associate the BCI**).

Deakin'275 does not explicitly disclose creating a connection request/response messages in a first network element (**see Forslow'832 FIG. 3 Gateway GPRS Support Node, GGSN**) for use in one an application layer or a transport layer for a communications network wherein a first connection is established in the application layer (**see Forslow'832 FIG. 3, GTP layer; FIG. 12, L2TP (PPP CHAP/APP response**) and a second connection is established in the transport layer (**see Forslow'832 FIG. 3, TCP/IP layers; FIG. 12, L2TP (PPP CHAP/APP response); col. 4, lines 1-41; note that GGSN responds to the**

PDP context messages request. The first connection of the response message is established in GTP gateway application layer and subsequent second connection is established in TCP/IP transport layer);

sending said connection response/request messages from said first network element to the further network element (**see Forslow'832 FIG. 3, Servicing GPRS Support Node, SGSN**) in the other one of the application layer or the transport layer (**see Forslow'832 FIG. 3, GTP/TCP/IP/SNDCP layers; FIG. 12, L2TP (PPP CHAP/APP) response is send from GGSN to SGSN; col. 4, lines 9-60; note that GTP/TCP/IP layers of the GGSN sends the connection response message to GTP/TCP/IP/SNDCP layers of SGSN**).

However, the above-mentioned claimed limitations are taught by Forslow'832. In view of this, having the system of Deakin'275 and then given the teaching of Forslow'832, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Deakin'275, for the purpose of providing the mechanism of processing connection messages in application and transport layers in the GPRS network, as taught by Forslow'832, since Forslow'832 states the advantages/benefits at col. 5, lines 22-35 that it would provide quality of service based, radio Internet access in order to support multiple application services including voice, data and multimedia. The motivation being that by processing at each layer and establishing the connection messages for the connection, it can increase the quality of service for each type of connection in the network.

Regarding claim 39, Deakin'275 discloses a network element for use in coordinating charging information (**see FIG. 2, NE 1 or 2**), the network element being configured to:

receive said charging identification from a further **(see col. 3, lines 25-37; note that Charging gateway receives BCI in order to use BCI for billing. Alternatively, note that per FIG. 1, NE1 can also receive BCI along with the response to connection signaling message from remote TE see col. 3, lines 15-18);**

to enable charging information for the elements to be coordinated **(see FIG. 7, note that the each network node records usage is forwarded to the charging gateway, the charging gateway coordinates/associates the billing/charging information by using BCI included in CDR of the nodes; see col. 3, line 30-64; see col. 4, lines 14-55; Alternatively, NE1 can coordinate/associate the BCI)**.

Deakin'275 does not explicitly disclose the network element **(see Forslow'832 FIG. 3, Servicing GPRS Support Node, SGSN)** being configured for use in one of an application layer or a transport layer for the communications network wherein a first connection is established in the application layer **(see Forslow'832 FIG. 3, GTP layer; FIG. 12, L2TP (PPP CHAP/APP response)** and a second connection is established in the transport layer **(see Forslow'832 FIG. 3, TCP/IP layers; FIG. 12, L2TP (PPP CHAP/APP response); col. 4, lines 9-60; note that SGSN converts the respond PDP context messages from GGSN. The first connection of the response message is established in GTP gateway application layer and subsequent second connection is established in TCP/IP transport layer).**

However, the above-mentioned claimed limitations are taught by Forslow'832. In view of this, having the system of Deakin'275 and then given the teaching of Forslow'832, it would have been obvious to one having ordinary skill in the art at the time the invention was

made to modify the system of Deakin'275, for the purpose of providing the mechanism of processing connection messages in application and transport layers in the GPRS network, as taught by Forslow'832, since Forslow'832 states the advantages/benefits at col. 5, lines 22-35 that it would provide quality of service based, radio Internet access in order to support multiple application services including voice, data and multimedia. The motivation being that by processing at each layer and establishing the connection messages for the connection, it can increase the quality of service for each type of connection in the network.

9. Claim 3,4,8,10-12,33-35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deakin'275 and Forslow'832, and further in view of Cobo (U.S. 6,496,690).

Regarding claim 33, Deakin'275 discloses a mobile station **(see FIG. 2, MS)** for use to coordinate charging information in a communications network including

a first network element **(see FIG. 2, NE2)** and a second network element **(see FIG. 2, NE1)** operable to include a charging identification in their call records **(see col. 3, lines 33-36; note that Call Detailed Records, CDR includes BCI; see col. 3, lines 29-39; note that CDR's with BCI is send from NE2 to charging gateway, thus CDR includes NE2 records. Similarly, NE1 also sends CDR to appropriate billing system, thus CDR includes NE1 records. Also, since it is possible to include CDR of NE2 records in the response to connection signaling message from NE2 to NE1, NE1 can also includes the NE1 and NE2 CDRs); and**

means for coordinating charging information using said charging identification included in the call records of said first and second network elements **(see FIG. 7, note that**

the each network node records usage is forwarded to the charging gateway, the charging gateway coordinates/associates the billing/charging information by using BCI included in CDR of the nodes; see col. 3, line 30-64; see col. 4, lines 14-55),

the mobile station **(see FIG. 2, MS)** is adapted:

to establish a first connection **(see FIG. 7, subscriber request service for a connection; see col. 4, lines 50-54; note that per FIG. 1, connection request signaling message is initiated and established between TEs)**;

Deakin'275 does not explicitly disclose a mobile station **(see Forslow'832 FIG. 3, Mobile station host)** establishing a first connection in an application layer **(see Forslow'832 FIG. 3, Application Layer; see FIG. 12, PDP context is activated; see col. 3, lines 54 to col. 4, lines 8, 42-44; note that the mobile unit (i.e. a user) initiates a first part of the connection request at the application layer by creating PDP context)** and a second connection in a transportation layer **(see Forslow'832 FIG. 3, the mobile station propagates the connection request at a combined system of layers which transport the message towards the network; see col. 4, lines 42-60)**;

to receive the connection message from the first network element **(see Forslow'832 FIG. 3, Gateway GPRS Support Node, GGSN)** in one of the application layer or the transport layer **(FIG. 3, Application/PDP/SNDCP/LLC/RLC/MAC Layers; see Forslow'832 FIG. 3, the mobile station receives the PDP context connection response message from GGSN; see col. 4, lines 1-41)**

to send said connection message, to the second network element **(see Forslow'832 FIG. 3, Servicing GPRS Support Node, SGSN)** in the other one of the application layer or

the transport layer (**FIG. 3, Application/PDP/SNDCP/LLC/RLC/MAC Layers; see Forslow'832 FIG. 3, the mobile station sends the PDP context connection request message to SGSN; see col. 4, lines 42-60**).

Neither Deakin'275 nor Forslow'832 does not explicitly disclose a mobile unit (**see Cobo'690 FIG. 4, MT 15**) to receive the charging identification (**see Cobo'690 FIG. 4, Create PDP context Response 84 and subsequent Active PDP context accept response 85; see Cobo'690 FIG. 6B, Charging ID of the PDP context message 70**) from the first network element (**see FIG. 4, GGSN 25**); and

to send said charging identification (**see Cobo'690 FIG. 4, activate PDP context request 81 and subsequent create PDP context request 83; see Cobo'690 FIG. 5 and 6B, Charging ID of the PDP context message 70 and 83**), to the second network element (**see FIG. 4, SGSN 12); see col. 7, lines 43-59; 64-67).**

However, the above-mentioned claimed limitations are taught by Cobo'690. In view of this, having the combined system of Deakin'2755 and Forslow'832, then given the teaching of Cobo'690, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Deakin'275 and Forslow'832, for the purpose of providing a mobile station to send and receive PDP context containing charging ID, as taught by Cobo'690, since Cobo'690 states the advantages/benefits at col. 3, lines 34-39 that it would provide a near real time account balance for subscriber's account and stopping the service when the balance reaches to zero. The motivation being that by supplying the mobile unit with the charging ID, it will alert the subscriber regarding the

account balance in near real time, and it will also benefit the service provider since the service provider can easily termite the calls as soon as the balance is zero.

Regarding claim 3, the combined system of Deakin'275 nor Forslow'832 discloses wherein said first network element sends with said charging identification to said second network element as described above in claim 1. Forslow'832 further discloses sending a request/response messages between network elements as described above in claim 1.

Neither Deakin'275 nor Forslow'832 discloses sending an address of a network element together with said charging identification (**see Cobo'690 FIG. 4, create PDP context request 83 is send from SGSN 12 to GGSN 25; see FIG. 5, a PDP context message 83 comprising Charging ID and SGSN address (i.e. an address of the network element); see col. 7, lines 59-62**).

However, the above-mentioned claimed limitations are taught by Cobo'690. In view of this, having the combined system of Deakin'275 and Forslow'832, then given the teaching of Cobo'690, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Deakin'275 and Forslow'832, for the purpose of providing a PDP message which comprises both charging ID and the network element address between the network elements, as taught by Cobo'690, since Cobo'690 states the advantages/benefits at col. 3, lines 34-39 that it would provide a mechanism for stopping the service of the subscriber when the balance reaches to zero. The motivation being that by incorporating charging ID and network element address, it will increase the service provider ability to identify each connection associated with the node's address for billing, and it is already defined by the standards for routing PDP messages.

Regarding claim 4, Deakin'275 discloses wherein said second network element adds said charging identification to charging information which said second network element collects **(see col. 3, lines 29-40; note that upon connection initiation, NE1 adds the BCI to call Detailed Records (CDR) which NE1 recoded/collected for billing).** Cobo'690 discloses adding said address of a network element to charging information **(see FIG. 5, SGSN address is added to the PDP context message 83 which comprising Charging ID; see col. 7, lines 59-62)**.

However, the above-mentioned claimed limitations are taught by Cobo'690. In view of this, having the combined system of Deakin'275 and Forslow'832, then given the teaching of Cobo'690, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Deakin'275 and Forslow'832, for the same modification as stated above in claim 3.

Regarding claim 8, the combined system Deakin'275 and Forslow'832 sends connection messages from first network element to said second network elements as described above in claim 1. Furthermore, Forslow'832 discloses wherein said first network element **(see FIG. 9, GGSN 116 with common access server 118)** comprises a mechanism to perform security function **(see col. 15, lines 9-24; note that common access server performs a security function regarding the mobile station access)**.

Neither Deakin'275 nor Forslow'832 explicitly discloses sending security information together with said charging identification to said second network element **(see Cobo'690 FIG. 4, GGSN receiving PDP message 83 and transmitting PDP message 84; see**

Cobo'690 FIG. 5 and 6, PDP message includes the security information (i.e. IMSI, NSAPI, PDP address, and etc.) and charging ID to SGSN 12).

However, the above-mentioned claimed limitations are taught by Cobo'690. Note that the combined system of Deakin'275 and Forslow'832 teaches the first network element performing the security function and responding the request according to the result. Cobo'690 teaches the first network element sending a PDP message comprising both security information and charging ID to the second network element. In view of this, having the combined system of Deakin'275 and Forslow'832, then given the teaching of Cobo'690, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Deakin'275 and Forslow'832, for the purpose of providing a PDP message which comprises both charging ID and the network element security information between the network elements, as taught by Cobo'690, since Cobo'690 states the advantages/benefits at col. 3, lines 34-39 that it would provide a mechanism for stopping the service of the subscriber when the balance reaches to zero. The motivation being that by incorporating charging ID and security information, it will increase the service provider ability to identify each connection associated with the node's address for billing and security, and it is already defined by the standards for routing PDP messages.

Regarding claim 10, the combined system Deakin'275 and Forslow'832 sends connection messages from first network element, to said second network element and end point of a communication as described above in claim 1.

Neither Deakin'275 nor Forslow'832 discloses said second network element (**see Cobo'690 FIG. 4, SGSN 12**) sends said charging identification (**see Cobo'690 FIG. 5 and 6, with charging ID embedded within PDP message**) towards an endpoint of a communication (**see Cobo'690 FIG. 4, MT 15 or GGSN 25; see col. 7, lines 43-67**).

However, the above-mentioned claimed limitations are taught by Cobo'690. In view of this, having the combined system of Deakin'275 and Forslow'832, then given the teaching of Cobo'690, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Deakin'275 and Forslow'832, for the purpose of providing a PDP message which comprises both charging ID and SGSN is sending towards either MT or GGSN end points, as taught by Cobo'690, since Cobo'690 states the advantages/benefits at col. 3, lines 34-39 that it would provide a near real time account balance for subscriber's account and stopping the service when the balance reaches to zero. The motivation being that by supplying the mobile unit or GGSN with the charging ID, it will alert the subscriber regarding the account balance in near real time, and it will also benefit the service provider (i.e. GGSN) since the service provider can easily termite the calls as soon as the balance is zero.

Regarding claim 11, the combined system Deakin'275 and Forslow'832 sends connection messages from said second network elements as described above in claim 1. Cobo'690 teaches wherein said second network element sending security information (**see FIG. 5 and 6, security identification, i.e. IMSI, NSAPI, PDP address, and etc.**) together with said charging identification (**see FIG. 5 and 6, Charging ID**) toward said endpoint of a

communication network (**see FIG. 4, GGSN 25 or MT 15; steps 83 and 85; note that SGSN sends security identification together with the charging ID towards either GGSN or MT); see col. 7, lines 43-67).**

However, the above-mentioned claimed limitations are taught by Cobo'690. In view of this, having the combined system of Deakin'275 and Forslow'832, then given the teaching of Cobo'690, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Deakin'275 and Forslow'832, for the same purpose as described above in claim 10.

Regarding claim 12, the combined system Deakin'275 and Forslow'832 sends connection messages from said second network elements as described above in claim 1. Cobo'690 teaches wherein said second network element sends an address of a network element (**see FIG. 5 and 6, SGSN address)** together with said charging identification (**see FIG. 5 and 6, Charging ID)** toward said endpoint of a communication network (**see FIG. 4, GGSN 25 or MT 15; steps 83 and 85; note that SGSN sends SGSN address together with the charging ID towards either GGSN or MT; col. 7, lines 59-62).**

However, the above-mentioned claimed limitations are taught by Cobo'690. In view of this, having the combined system of Deakin'275 and Forslow'832, then given the teaching of Cobo'690, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Deakin'275 and Forslow'832, for the same purpose as described above in claim 10.

Regarding claim 34, the combined system of Deakin'275, Forslow'832 and Cobo'690 discloses where in the mobile station is adapted to receive the charging identification (Id) created by the first network element in one of the application layer or the transport layer as described above in claim 33. Deakin'275 discloses the first network element (GGSN), Forslow'832 discloses the first network element (GGSN).

In view of this, having the combined system of Deakin'275 and Forslow'832, then given the teaching of Cobo'690, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Deakin'275 and Forslow'832, for the same purpose as described above in claim 33.

Regarding claim 35, the combined system of Deakin'275, Forslow'832 and Cobo'690 discloses where in the mobile station is adapted to send to send to the second network element said received charging identification as described above in claim 33. Cobo'690 further discloses sending an address corresponding to the first network element together with charging information (**see FIG. 5 and 6; a PDP message comprising SGSN address, GGSN address, and Charging ID; see col. 7, lines 60-67**).

In view of this, having the combined system of Deakin'275 and Forslow'832, then given the teaching of Cobo'690, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Deakin'275 and Forslow'832, for the same purpose as described above in claim 33.

Regarding claim 37, Deakin'275 a mobile terminal and terminal equipment coupled thereto (see FIG. 1, MT and TE are coupled; see col. 3, lines 15-24).

10. Claim 6,9,22,29,31,32 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deakin'275 and Forslow'832, as applied to claims 1, 24, and 33 above, and further in view of Cobo'690 and well established teaching in art.

Regarding claims 6, 32 and 36, the combined system of Deakin'275 and Forslow'832 discloses wherein the first network element and the Mobile Station provides the connection messages to both of the application layer and the transport layer as described above in claim 1.

Neither Deakin'275 nor Forslow'832 explicitly discloses and the Mobile Station (**see Cobo'690 FIG. 4, MT 15**) provides the charging identification (**see FIG. 5 and 6, Charging Id; see FIG. 4, Steps 81 and 85; note that charging ID is included in the PDP messages which are transmitted and received at the mobile terminal; see col. 7, lines 43-69).**

However, the above-mentioned claimed limitations are taught by Cobo'690. Note that the combined system of Deakin'275 and Forslow'832 discloses the mobile unit providing/sending/receiving PDP messages to both application and transport layers. Cobo'690 teaches PDP message comprising charging ID. In view of this, having the combined system of Deakin'275 and Forslow'832, then given the teaching of Cobo'690, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Deakin'275 and Forslow'832, by providing a mobile

unit with the capability of proving the charging ID, for the same modification as stated above in claim 33.

Neither Deakin'275, Forslow'832, nor Cobo'690 explicitly discloses wherein said first network element is a Mobile Station (MS).

However, the above-mentioned claimed limitations are taught by well-established teaching in art. Note that the combined system of Deakin'275 and Forslow'832 discloses the mobile unit providing/sending/receiving PDP messages. The combined system Deakin'275 and Forslow'832 also discloses the gateway node GGSN providing/sending/receiving PDP messages as well. Thus, it is clear that that first network element can be a mobile station depending which side initiates the connection first (i.e. mobile unit initiating the connection, or a device on the network side initiating the connection to the mobile station).

In view of this, having the combined system of Deakin'275, Forslow'832, and Cobo'690, then given the teaching of well established teaching in art, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Deakin'275, Forslow'832 and Cobo'690, by assigning a mobile unit as a first network element. The motivation being that by assigning a mobile unit as a first network element to receive the connection, it can enhance the duplex capability of setting up the connection from either side of the network.

Regarding claim 9, Forslow'832 discloses the first network element verifying said the connection messages (i.e. a message that includes the address identification) against said security information (**see FIG. 9, the combined system of GGSN 116 and ISP 130**

comprising common access server 118; PPP server, L2TP Server, RTP translator 126, Mapper 128 and Authentication Server 132; see col. 15, lines 9-24, see col. 16, lines 17-50; note that the combined system verifies the requests against the security information.) Cobo'690 teaches the connection messages include both security information and charging information, and the message is send between the network elements as described above in claim 8. Cobo'690 also discloses that the security and billing functions are performed in FIG. 2 step 82 across the network; see col. 7, lines 45-53.

Neither Deakin'275, Forslow'832 nor Cobo'690 explicitly discloses said second network element verifies information.

However, the above-mentioned claimed limitations are taught by well established teaching in art. In particular, well established teaching in art teaches wherein said second network element verifies said charging identification against said security information. Note that the combined system of Deakin'275 and Forslow'832 discloses the network element performing security function against the connection messages. Cobo'690 teaches sending connection messages, which contains both security and charging ID between network elements. Thus, it is clear that the second network element (i.e. SGSN) can verify said charging ID against the security information before it forwards to first network element (i.e. GGSN) or the mobile station.

In view of this, having the combined system of Deakin'275, Forslow'832, and Cobo'690, then given the teaching of well established teaching in art, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Deakin'275, Forslow'832 and Cobo'690, by assigning the second

network element to perform verification regarding security and billing. The motivation being that by assigning a second network element to perform security and billing, it can enhance the security by stopping the network from unauthorized subscriber making the fraud calls.

Regarding claims 22 and 29, the combined system Deakin'275 and Forslow'832 discloses wherein said charging identification is sent from said first network element to said second network element, and the mobile station sends a request to setup/initiate the connection in the other one of the application layer of the transport lever as described above in claims 1 and 24.

Neither Deakin'275 nor Forslow'832 teaches and the mobile station (**see Cobo'690 FIG. 4, MT 15**) includes the charging identification in a request (**see Cobo'690 FIG. 4, Active PDP context message 81; see Cobo'690 FIG. 5 and 6, Charging ID of the PDP context message 83 or 70; see col. 7, lines 43-67**)

However, the above-mentioned claimed limitations are taught by Cobo'690. In view of this, having the combined system of Deakin'2755 and Forslow'832, then given the teaching of Cobo'690, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Deakin'275 and Forslow'832, for the purpose of providing a mobile station to send and receive PDP context containing charging ID, as taught by Cobo'690, since Cobo'690 states the advantages/benefits at col. 3, lines 34-39 that it would provide a near real time account balance for subscriber's account and stopping the service when the balance reaches to zero. The motivation being that by supplying the mobile unit with the charging ID, it will alert the subscriber regarding the

account balance in near real time, and it will also benefit the service provider since the service provider can easily termite the calls as soon as the balance is zero.

Neither Deakin'275, Forslow'832 nor Cobo'690 explicitly discloses wherein said message sent via the mobile station.

However, the above-mentioned claimed limitations are taught by well established teaching in art In particular, well established teaching in art teaches wherein said message sent via the mobile station. Note that the combined system of Deakin'275 and Forslow'832 teaches sending connection messages between the mobile station and the network elements (i.e. GGSN, SGSN, and charging gateway). Deakin'275 further discloses Charging Gateway Function CGF, MSC/VLR, and HLR, in FIG. 1. Thus, it is clear that the message can be routed from GGSN to SGSN via the combined system CGF, MLR and MT.

In view of this, having the combined system of Deakin'275, Forslow'832, and Cobo'690, then given the teaching of well established teaching in art, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Deakin'275, Forslow'832 and Cobo'690, by routing the messages from GGSN to SGSN via mobile terminal. The motivation being that by routing the messages from the gateway primarily to the mobile terminal before the setting the connection, it will alert and inform the mobile subscriber regarding the potential charging/billing information.

Regarding claim 31, the combined system Deakin'275 and Forslow'832 discloses wherein said connection is said transport layer as described above in claim 29. Deakin'275

further discloses a PDP context (**see FIG. 12, PDP context is activated; see col. 3, lines 54 to col. 4, lines 8, 42-60; note that the mobile unit (i.e. a user) initiates a PDP context which propagates to a transport layer towards the network**);

In view of this, having the combined system of Deakin'275, Forslow'832, and Cobo'690, then given the teaching of well established teaching in art, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Deakin'275, Forslow'832 and Cobo'690, for the same purpose as stated in claim 24 above.

11. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Deakin'275 and Forslow'832, and further in view of well established teaching in art.

Regarding claim 18, the combined system of Deakin'275 and Forslow'832 disclose a tuple as described above in claim 19. Forslow'832 further discloses the TCP/IP protocol stack for each network elements nodes (**see FIG. 3, SGSN and GGSN**), and destination IP address and port information of a transaction specific media connection (note that when transmission in TCP/IP, the TCP/IP header must contain the destination IP address and port information of a transaction specific media connection (i.e. RTP or IP)).

Neither Deakin'275 nor Forslow'832 explicitly discloses said tuple includes address and port information.

However, the above-mentioned claimed limitations are taught by well established teaching in art. In particular, well established teaching in art teaches said tuple includes destination address and port information of a transaction specific media connection. It is

well known in the art that a tuple comprises the field in the data packet. Deakin'275 teaches the filed in a data packet (i.e. BCI). Forslow'832 teaches sending the connection messages between the network elements which comprises TCP/IP and other headers. It is well known in the art that TCP/IP header must contain destination address and port information of a transaction specific media connection.

In view of this, having the combined system of Deakin'275 and Forslow'832, then given the teaching of well established teaching in art, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Deakin'275 and Forslow'832, for the purpose of providing Forslow'832's destination address and the port information to Deakin'275's tuple, as taught by well established teaching in art. The motivation being that by providing charging/billing information with the destination and port information, it can increase the correct billing and charging by ensuring the proper billing messages are routed between respective parties.

12. Claims 28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deakin'275 and Forslow'832, and further in view of Kreppel (U.S. 6,574,201).

Regarding claim 28, Deakin'275 discloses the first network element comprises a Gateway GPRS Support Node (see Deakin'275 FIG. 1, GGSN). Forslow'832 disclose the first network element comprises a Gateway GPRS Support Node (see FIG. 3, GGSN).

Neither Deakin'275 nor Forslow'832 does not explicitly the second network element comprises a Call State Control Function (**see Kreppel'201 FIG. 1, SCF, Service/Call Control Function; see col. 4, lines 36-46**).

However, the above-mentioned claimed limitations are taught by Kreppel'201. In view of this, having the combined system of Deakin'2755 and Forslow'832, then given the teaching of Kreppel'201, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Deakin'275 and Forslow'832, for the purpose of providing SCF, as taught by Kreppel'201, since Kreppel'201states the advantages/benefits at col. 1 lines 64 to col. 2, lines 10 that it would promote interworking of the packet data service within network functions of an intelligent network . The motivation being that by utilizing SCF as the second network element, it can increase the interworking, monitoring and control capability in the GSM/GPRS network (see Kreppel'201 col. 4, lines 40-44).

Regarding claim 30, the combined system of Deakin'275 and Forslow'832 discloses said second network element in said application layer as described in claim 24. Kreppel'201 discloses said second network element comprises Call State Control Function.

In view of this, having the combined system of Deakin'2755 and Forslow'832, then given the teaching of Kreppel'201, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Deakin'275 and Forslow'832, for the purpose of providing SCF in the application layer of the second network element, as taught by Kreppel'201, for the same purpose as stated above in claim 28.

Allowable Subject Matter

13. Claim 13, 16 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. Claims 13, 16 and 17 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N Moore whose telephone number is 703-605-1531. The examiner can normally be reached on M-F: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on 703-308-7828. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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